

**Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form**

1. Applying for (select one): ☒ (a) Prop 13 Urban Water Conservation Capital Outlay Grant
☐ (b) Prop 13 Agricultural Water Conservation Capital Outlay Feasibility Study Grant
☐ (c) DWR Water Use Efficiency Project
2. Principal applicant (Organization or affiliation): Pleasantimes Mutual Water Company, Inc.
3. Project Title: PMWC Water Meter Water Conservation Project
4. Person authorized to sign and submit proposal:
- | | |
|-----------------|---|
| Name, title | John A. Gennrich, President |
| Mailing address | P.O. Box 2109 |
| Telephone | Bethel Island, CA 94511
925 684-9660 |
| Fax. | 925 684-9660 |
| E-mail | sunrich_company@email.msn.com |
5. Contact person (if different):
- | | |
|------------------|-----------------------------|
| Name, title. | John A. Gennrich, President |
| Mailing address. | |
| Telephone | 925 254-7238 |
| Fax. | |
| E-mail | |
6. Funds requested (dollar amount): \$49,000
7. Applicant funds pledged (dollar amount): 0
8. Total project costs (dollar amount): \$49,000
9. Estimated total quantifiable project benefits (dollar amount): \$55,100
- Percentage of benefit to be accrued by applicant: 100%
- Percentage of benefit to be accrued by CALFED or others: Unknown

**Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form (continued)**

10. Estimated annual amount of water to be saved (acre-feet): 50
- Estimated total amount of water to be saved (acre-feet): 50
- Over ____ years 20
- Estimated benefits to be realized in terms of water quality, instream flow, other: 1000
11. Duration of project (month/year to month/year): 10/02 to 5/03
12. State Assembly District where the project is to be conducted: 15
13. State Senate District where the project is to be conducted: 7
14. Congressional district(s) where the project is to be conducted: 10
15. County where the project is to be conducted: Contra Costa
16. Date most recent Urban Water Management Plan submitted to the Department of Water Resources: N/A
17. Type of applicant (select one):
- Prop 13 Urban Grants and Prop 13 Agricultural Feasibility Study Grants:
- ☐ (a) city
- ☐ (b) county
- ☐ (c) city and county
- ☐ (d) joint power authority
- ☐ (e) other political subdivision of the State, including public water district
- ☒ (f) incorporated mutual water company
- DWR WUE Projects: the above entities (a) through (f) or:
- ☐ (g) investor-owned utility
- ☐ (h) non-profit organization
- ☐ (i) tribe
- ☐ (j) university
- ☐ (k) state agency
- ☐ (l) federal agency

18. Project focus:

- ☐ (a) agricultural
☒ (b) urban

Consolidated Water Use Efficiency 2002 PSP

Proposal Part One:

A. Project Information Form (continued)

19. Project type (select one):
Prop 13 Urban Grant or Prop 13
Agricultural Feasibility Study Grant
capital outlay project related to:

- ☒ (a) implementation of Urban Best
Management Practices
☐ (b) implementation of Agricultural Efficient
Water Management Practices
☐ (c) implementation of Quantifiable
Objectives (include QO number(s))

- ☐ (d) other (specify)

DWR WUE Project related to:

- ☐ (e) implementation of Urban Best
Management Practices
☐ (f) implementation of Agricultural Efficient
Water Management Practices
☐ (g) implementation of Quantifiable
Objectives (include QO number(s))
☐ (h) innovative projects (initial
investigation of new technologies,
methodologies, approaches, or
institutional frameworks)
☐ (i) research or pilot projects
☐ (j) education or public information
programs
☐ (k) other (specify)

20. Do the actions in this proposal involve
physical changes in land use, or
potential future changes in land use?

- ☐ (a) yes
☒ (b) no

If yes, the applicant must complete the CALFED
PSP Land Use Checklist found at
http://calfed.water.ca.gov/environmental_docs.ht

[ml](#) and submit it with the proposal.

**Consolidated Water Use Efficiency 2002 PSP
Proposal Part One
B. Signature Page**

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

The individual signing the form is authorized to submit the proposal on behalf of the applicant; and

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant.

Signature

Name and title

Date

PROPOSAL PART TWO

Project Summary.

Bethel Island has a population of about 2,300 people with a mean income of \$35,731 (1990 census). Its potable water needs are served by a number of wells located around the Island, which are owned by about 75 water companies servicing about 1,000 connections. This represents an annual potable water consumption of about 500 acre-feet. Pleasantimes Mutual Water Company serves the Pleasantimes subdivision. Currently we are the largest water company on the Island with about 200 connections delivering about 100 acre-feet of potable water per year.

Although potable water conservation is a preferred course of action, Bethel Island is unique in that 95% of our connections have access to non-potable Delta water at their docks. By installing water meters, we feel we can shift by taking advantage of the Delta water or cut through conservation 50% of our potable water use. This means the Pleasantimes Mutual Water Company can save approximately 50 acre-feet of potable water per year or 1,000 acre-feet over the life of the water meters.

We have about three miles of two-inch water main. We have applied to the California State Health Department under the Safe Drinking Water Program for a loan to replace our 15+ year old PVC mains with new larger mains. Recently we have noticed an increase in the number of leaks caused by the deterioration of the glue joints and the deterioration of the service taps at the main. These leaks will be corrected with our proposed water main construction and no funding is being requested under Proposition 13 for this improvement.

Through the help of the Proposition 13 Urban Water Conservation Capital Outlay Grant, we are proposing a water meter demonstration project. Currently, water meters are not used on the Island by any of the water companies. It is our hope that through the use of water meters we could cut as much as 50% of our potable water delivery or 50 acre-feet per year. If we are successful, water meters could be added to the remaining 800 connections leading to an Island-wide savings of 250 acre-feet per year. About 95% of our member connections have access at their docks to Delta water. Through water meters we feel we can make it financially attractive to use Delta water instead of potable water for their non-potable needs.

We calculated our potential savings by reviewing our power bills for the past several years. During the winter months our water pumping is at it's lowest, probably reflecting a 100% potable use. By July our pumping (as measured by our power consumption) is almost five times as high as in the winter. Yet when we called the local sanitary district we were told the amount of water they are treating for us is about the same year-around. This leads us to believe the high summer usage is due to unlimited water use for landscaping and other non-potable uses. Thus, we feel if we add water meters to our system, we could cut our water pumping considerably.

A. Scope of Work: Relevance and Importance.

1. Scope

Currently we have a service valve in a meter box for each connection. For approximately \$225 each we can add a meter to each of our connections. In addition, we will add meters with recorders at each of our three pump stations. Our billing process will also have to be changed. But after purchasing the start-up equipment, we feel the new and old accounting systems will cost about the same to perform.

Certainly the first goal of the project is to compare the amount of water pumped with the amount of water delivered. Thus any leaks can be found and eliminated. Over the past few years we have had a few members not repair leaks in a timely manor. In a few cases, we know these leaks have cost us an addition \$500 in power consumption by the time we found them and had them repaired. We have asked through notices and mailed reminders not to use our water for non-potable needs, but the amount we pump each year still rises. By making each connection financial responsible for their use, we believe we can cut our ground water use significantly. In the long run, our future water main replacement program and new treatment plant will be able to be down sized if we can cut our water use.

Assuming we could consistently pump, on monthly bases, the same amount of water as we do during the winter four-month period, we could cut our energy consumption by 50%. For our 2000-2001 fiscal year we could have saved about \$2,300. With the increase in power cost recently (nearly 42%), this fiscal year's savings would approach \$3,700. In addition to an energy savings, pumping less will lower our maintenance costs. Currently on average we are spending \$4,400 annually to maintain our system. We estimate a 25% reduction in maintenance costs (\$1,100) if the amount of water pumped is reduced by 50%. Together, this represents an annual direct water meter savings of \$4,800 that should produce an annual potable water savings of 50 acre-feet.

We estimate it will cost about \$225 per connection to add a meter. With 200 connections the construction cost will be about \$45,000. We also estimated it will cost an additional \$4,000 to add meters to the pump stations and buy the computer, software, and water meter reading wand for a total project cost of \$49,000. If we get a net \$4,800 per year savings its present value will pay for the meters in about 20 years. According to our neighboring water companies, meters should be expected to have a service life of about 20 years. At a 20-year service life the Benefit/Cost ratio is 1.1.

In addition if the amount of water pumped is reduced, the size of the new water main could be reduced. A drop by one pipe size could mean a project savings of \$75,000. This raises the Benefit/Cost ratio to 2.7. We have just started to consider some type of water treatment. A reduction in water usage will mean that our future water treatment system can be smaller as well as cost less to run. Our current gross estimate for that project is \$250,000. Perhaps another \$50,000 savings is possible. Adding these savings raises the Benefit/Cost ratio to 3.7. Finally, since we represent 200 of the 1,000 water connections

on Bethel Island, any savings we can develop with our water meter project can eventually be multiplied by five if the other water companies follow our lead.

2. Water Issues

Bethel Island is unique in that we are surrounded by water and most of our housing is near a levee. This gives us two water sources to tap. But in a large portion of the area around us, ground water is the main source of potable water. We have seen over the years the ground water elevation drop. Thus if Bethel Island can limit its ground water use, more will be available for others. In a selfish way, if we can keep the ground water elevation higher, our pumping cost will be lower. Going to water meters is consistent with our neighboring off-Island communities. They use water meters to encourage consumers to use less water company provided water.

B. Scope of Work: Technical/Scientific Merit, Feasibility, Monitoring and Assessment.

1. Technical adequacy

As mentioned earlier, water meters are being used in our neighboring communities. It is through them the cost estimate of \$225 per connection was developed. The adding of water meters is a well-tested concept to save water.

By looking back over several years of power bills, it is very evident that our members water habits change with the season and the potential for savings is very real. We have members who take their daily walks around the various sections of our water distribution system looking for problems. But we still hear and see to many members not practicing water conservation. But there is nothing like paying for what you use to enforce conservation or at least a shift to Delta water for non-potable uses. With an unlimited water use potential by our individual members, we are starting to hear the “fairness” argument used for conservation at our Annual Meetings. This comes about because some members, who are down the main, further away from the well, do not have the same amount of water available to them. The current restriction of our small water main limits water use to some extent. In a sense, our small main size is forcing some conservation.

2. Schedule

Should our project be accepted, we would immediately, this fall, put out for bid the water meter installation. All of the construction should be completed in a few months. Nearby Diablo Water District has given us a copy of their drawing on how they install meters and which meter they use as their standard. For simplicity, we will follow their standard. (As a side note, they manage several of the small water companies on the Island now. So using their standards fits a consolidation goal of Bethel Island water companies.)

3. Assessment

The assessment of our success will be easy. All we have to do is watch what happens to the energy bill. The number of kilowatts used per month as compared to our historical

usage must drop if the project is to be a success. This will especially have to be true during the warmer months. On a monthly basis this comparison is currently shown on our bills. In addition, we have many years of our monthly bills to use as an expanded base for comparison. Each month we can calculate the savings. Currently, we watch the month-to-month change as a way to spot any major leaks. If after the meters are installed and the water usage does not significantly go down, the cost of the water increments above a base amount will be adjusted upwards on a steeper path. We currently have several tiers. As mentioned earlier, the relative availability and thus billing fairness is already an issue. At our Annual Meetings we have previously discussed using water meters in order to promote fairness. To date the use of water meters has been tabled because of the high initial expense and long payback period. With few funds available in a low-income area, other projects with shorter payback periods have to be constructed first.

4. Specifications

We have talked to the neighboring water districts that use meters. For simplicity we will use the same tried and proven meter so we can adopt their service procedures and use their personnel if needed. (As a side note should we not be successful, the water meters could be salvaged and sold since we will use the same meter as our neighboring larger water districts.) We expect to purchase 200 water meters and lockable brass “J” valves. The meters will be installed in the existing meter boxes. The boxes will be located on the street side of a member’s property line. Any existing boxes located on private property will be moved. No box shall be located behind a fence. Our Board President is a licensed civil engineer and is in charge of our current upgrade plan.

C. Qualification of Applicants.

1. Resumes

The Board President, John A. Gennrich P.E., will serve as the project manager. He has a Bachelor’s Degree in Structural Engineering and a Master’s of Engineering in Water Resources. He has been a licensed engineer in California for almost 30 years. For the first 10 years of his career he worked for several large engineering firms designing and building large water and wastewater projects. He spent approximately another 10 years teaching Construction Project Management at several Universities. Lately, he has been working as a consulting engineer.

2. Other Consultants

The Board has hired a local consultant who has spent the last 30 years designing and constructing water systems in the West. He has a PHD in water chemistry. The local water district engineers have been of great help sharing their knowledge, data, and experience.

D. Benefits and Costs

1. Budget Breakdown

200 Water Meters with “J” valves @ \$165 each	\$33,000.00
Installation @ \$50 each	\$10,000.00
Meter Box, contingency	\$ 1,000.00
Moving Services, contingency	\$ 1,000.00
Meters at Pump Stations with recorders	\$ 2,000.00
Computer, Billing Software, Meter Wand	\$ 2,000.00
	=====
Project Total	\$49,000.00

2. Cost Sharing

We have not applied for any additional funds from other outside sources for this water meter project. We have applied for low interest loans to upgrade our water mains and to add water treatment. As of this writing, we are still several years away from that funding. We have raised our water rates to begin saving for these projects and we set the rate so we can pay off these loans in a timely manor.

3. Benefit Summary and Breakdown

A quick glance at our monthly energy bills shows that as the weather warms our energy bill rises. (We know if any spikes occur to look for leaks.) Since our Board members do not want to become water police, we have been looking at installing water meters as a means of curbing this warm weather rise. This has been particularly true since the start of California’s energy crisis.

Therefore, our goal is simple. If we can save approximately \$4,800 per year in expenses due to the water meter imposed conservation or shift in use, we can pay back their cost in about 20 years on a discounted cash flow basis. With an expected meter life of 20 years, the Benefit/Cost ratio is 1.1. If we add the additional Benefits that lower water usage brings to our future water main and water treatment projects, the Benefit/Cost ratio rises to between 2.7 to 3.7 respectively.

4. Assessment of Costs and Benefits

a. Assumptions

Based on a discussion with the Diablo Water District, it would take about 4 hours to read 200 water meters with a meter-reading wand. This information would then be entered into a computer program and the bills prepared. We have assumed the billing tasks will take about the same amount of time as it does now. Furthermore, as time progresses the cost of energy is expected to rise. The Present Value of this rise was assumed to offset the meter maintenance cost.

To calculate the \$1,100 annual maintenance savings, we reviewed the last three years of records. In general we spend about \$4,400 annually repairing and maintaining the pump stations and water mains. We feel if we reduce their use by 50% we can save 25% of the annual maintenance cost. As an example, we will be able to extend the time in between the scheduled preventative maintenance repairs.

The following table shows how the \$3,700 per year energy savings was determined. First we selected a winter month, which it was felt represents purely potable water use. (It was assumed landscaping and other uses were minimal.) This energy bill amount was then assigned to the warmer months. For the remainder of the 2001-2002 fiscal year, the 2000-2001 values were used multiplied by the recent 41.7% rate increase. Overall, the assumption is the energy bill should be uniform throughout the year if the landscaping and other uses can be minimized or shifted by individuals pumping water at their docks.

b. & c. Determination of Meter Savings

	PG&E Billed Cost	Projected w/ Meter	Savings
2000-2001			
July	\$572.29	\$135.09	\$432.15
August	\$530.19	\$135.09	\$395.10
September	\$467.07	\$135.09	\$331.98
October	\$386.77	\$135.09	\$251.68
November	\$257.26	\$135.09	\$122.17
December	\$149.80	\$135.09	\$14.71
January	\$144.70	\$135.09	\$9.61
February	\$135.09	\$135.09	\$0.00
March	\$140.14	\$135.09	\$5.05
April	\$184.59	\$135.09	\$49.50
May	\$298.27	\$135.09	\$163.18
June	<u>\$640.77</u>	<u>\$135.09</u>	<u>\$505.68</u>
<i>Subtotals</i>	<i>\$3,906.94</i>	<i>\$1,621.08</i>	<i>\$2,285.86</i>
2001-2002			
July	\$932.59	\$179.51	\$753.08
August	\$731.17	\$179.51	\$551.66
September	\$805.82	\$179.51	\$626.31
October	\$579.46	\$179.51	\$399.95
November	\$412.18	\$179.51	\$232.67
December	\$226.23	\$179.51	\$46.72
January	\$253.55	\$179.51	\$74.04
February	\$179.51	\$179.51	\$0.00
March			\$7.16
April			\$70.16
May			\$231.30
June			<u>\$716.79.53</u>
<i>Subtotals</i>	<i>\$4,120.51</i>	<i>\$1,556.84</i>	<i>\$3,709.84</i>

d. Costs and Benefits to Parties

The direct financial benefits would go to the applicant by way of lower energy and maintenance costs over the project life. The benefit to others (CALFED etc.) will be less ground water use. This makes 50 acre-feet of ground water annually available for other users or 1,000 acre-feet over the project life. This benefit was not quantified financially.

e. Benefit / Cost Ratio

Present Value of energy savings = PV(\$4,800 per year, 6%, 20 years) = \$55,100

$$\begin{array}{lcl} \text{Meters} = \frac{\text{Benefit}}{\text{Cost}} = \frac{\$55,100}{\$49,000} = 1.1; & \text{Combined Projects} = \frac{\$180,100}{\$49,000} = 3.7 \end{array}$$

Without this grant, water meters probably would not be installed because of their long payback period (the entire life of the meters) on a discounted cash flow basis. However, as discussed earlier, there are about 75 small water companies on Bethel Island with about 1,000 connections. If we can successfully demonstrate the cost benefits of the meters, others will install them. All of the Bethel Island water companies have similar problems. Most have undersized water mains and only one has any water treatment. By installing water meters, we are hoping to demonstrate not only to our members, but also to the other water companies that with better water conservation and/or a shift in use, new larger water mains and treatment systems are within reach of a reasonable monthly fee.

Community Involvement

Last fall we sent out a questionnaire with the water bills. We got about a 75% response. We asked a number of questions about water use. Only a small percentage of our members have installed pumps on their docks even though our by-laws state our potable water can only be used for domestic purposes. A dock pump can be installed for a few hundred dollars or about twice our current annual water charge. Through water meters we can easily make the dock pump cost effective so as to obtain the needed water savings.

An interesting survey comment was the number of people who do not drink the water or have installed some type of personal treatment system. If the cost people spend on treatment or bottled water is added to our current monthly water charge, treatment on a centralized scale is possible. As we eliminate the non-potable water uses and therefore reduce the amount of water needing treatment, a centralized water treatment system becomes more practical. Based on the fact that last year we raised our water rates by 50% without much of a problem, we know the benefits of the water meters will also be supported as another step toward improving our water system. Based on our last Annual Meeting, the fairness of availability should bring acceptance of the meters. We have been on the path to water meters for five years. Only their high initial cost has stopped us from installing them. Our revenue is simply needed elsewhere first. This grant, we hope, will provide the spark to get to the next step and bring better water quality to everyone.

Pleasantimes Mutual Water Company, Inc.

P.O. Box 2109

Bethel Island, CA 94511

(925) 684-9660

February 27, 2002

California Department of Water Resources

Office of Water Use Efficiency

1416 Ninth Street, Room 338

Sacramento, CA 95814

Attention: Marsha Prillwitz, (916) 651-9674

Subject: Prop 13 Urban Water Conservation Capital Outlay Grant

Project: PMWC Water Meter Water Conservation Project

Dear Marsha:

Thank you for taking the time to explain to us about the above named grant and answering our questions. Please find enclosed one original copy, eight photocopies, plus an electronic copy in the MS Word format of our application.

Because of the uniqueness of Bethel Island and the fact most of the homes are located along our levee, we believe through a combination of potable water conservation and the shifting of some potable water use to non-potable Delta water, we can cut our potable water use by as much as 50%. For our 200-connection water company this will result in a savings of 50 acre-feet of potable water per year. With an expected water meter life of 20 years, the total savings should exceed 1,000 acre-feet of potable water.

By cutting our potable water use by 50%, we will realize a savings of \$4,800 annually through a reduction in energy and maintenance expenses. The Present Value of this savings over the 20-year project life has a benefit value of \$55,100 using a 6% interest rate. The cost of installing the water meters is estimated at \$49,000. This yields a Benefit/Cost ratio of 1.1.

Through the Safe Drinking Water Program we are hoping to replace our under sized water mains and add some water treatment. Reducing our potable water demand will directly impact these projects by scaling them back. We are projecting a possible future savings of \$125,000. If we add these savings to the water meter project, the Benefit/Cost ratio will rise from 1.1 to 3.7. Since we are a low-income community (\$35,731 Mean Income, 1990 Census) we cannot afford to upgrade our water mains and add the water meters. Thus any help we can receive from the Prop 13 Urban Water Conservation Capital Outlay Grant program will be greatly appreciated.

Again thank you for your consideration.

Sincerely

John A. Gennrich, P.E.

Board President